



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/322,108	05/28/1999	YUTAKA IKEDA	49128(551)	7517

21874 7590 07/09/2003

EDWARDS & ANGELL, LLP  
P.O. BOX 9169  
BOSTON, MA 02209

EXAMINER

BELLO, AGUSTIN

ART UNIT PAPER NUMBER

2633

DATE MAILED: 07/09/2003

17

Please find below and/or attached an Office communication concerning this application or proceeding.

2

**Office Action Summary**

Application No.

09/322,108

Applicant(s)

IKEDA ET AL. 

Examiner

Agustin Bello

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 March 2003 and 13 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 3,4,7,9-16,20 and 22-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13 is/are allowed.
- 6) ☒ Claim(s) 3,4,7,9-12,14-16 and 22-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Continued Prosecution Application***

1. The request filed on 3/31/03 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/322,108 is acceptable and a CPA has been established. An action on the CPA follows.

The applicant has also filed a supplemental preliminary amendment which reintroduces claims into the instant application. New claim 22 is an amended version of cancelled claim 1, new claims 23-26 recite the same limitations as cancelled claims 2, 5, 6, and 8, respectively, new claim 27 is an amended version of cancelled claim 17, and new claims 28-30 recited the same limitations of cancelled claims 18, 19, and 21 respectively. Previously dependent claims 3, 4, 7, 9, 10-12, 14-16, and 20 have been rewritten as independent claims.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 3, 9, 11, 12, 15, 20, and 22-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Palmer (U.S. Patent No. 6,285,481) in view of Batey (U.S. Patent No. 6,104,512).

Regarding Claims 22 and 24-30 Palmer teaches a digital optical communication device comprising: an optical reception circuit converting an optical signal received from any external source to an electric signal (reference numeral 104B in Figure 1); a decoding circuit decoding the

electric signal resultant from conversion by said optical reception circuit (reference numeral 306 in Figure 4), wherein circuitry of the reception light intensity level judgment circuit for judging an intensity level of received light is configured so as to output one intensity level judgment signal of a plurality of intensity level judgment signals (in that the circuit samples the received signal strength data stream column 4 lines 3-6), said one intensity level judgment signal being representative of one determined light emission intensity (inherent); a reception light intensity level judgment circuit judging an intensity level of received light based on the electric signal resultant from conversion by said optical reception circuit (reference numeral 308, 310 in Figure 4); a coding circuit coding transmission data (reference numeral 318 in Figure 4); and an optical transmission circuit determining a light emission intensity based on result of the judgment by said reception light intensity level judgment circuit and converting the transmission data coded by said coding circuit to an optical signal with the light emission intensity (reference numerals 310, 320, 324, and 322 in Figure 4 and column 5 lines 44-67), and wherein circuitry of the optical transmission circuit for converting the transmission data to an optical signal having the light emission intensity is configured so as to be capable of outputting optical signals having any one of a plurality of light emission intensities (e.g. the laser being adjustable to one of a plurality of intensities according to the intensity level received and processed column 5 lines 55-67) is selected as said determined light emission intensity responsive to said one intensity level judgment circuit. Palmer differs from the claimed invention in that Palmer fails to specifically teach that the decoding circuit judges whether or not the decoding is normally completed and as a result of the judgment by said decoding circuit the optical transmission circuit light intensity adjusted. However, Palmer does teach a form of acknowledgment between the transceivers of

Art Unit: 2633

the system (i.e. if a loss of signal strength data at the receiver is detected then data transmission is suspended column 1 lines 52-55). One skilled in the art would clearly have recognized that acknowledgment of data reception and correct decoding would have been beneficial in order to avoid loss of data and to determine when it was necessary to re-transmit of data. Such acknowledgment between transceivers is well known in the art. Batey, in the same field of endeavor, teaches that it well known in the art to use a decoding circuit that judges whether or not the decoding is normally completed and as a result of the judgment by said decoding circuit the adjusting the optical transmission circuit light intensity (column 2 lines 58-65, column 3 lines 25-27, column 4 lines 38-47, column 5 lines 21-32, column 6 lines 8-11, column 8 lines 45-48, 58-63, and column 10 lines 11-67). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have used a decoding circuit that judges whether or not the decoding is normally completed as taught by Batey, and as a result of the judgment by said decoding circuit adjusting the optical transmission circuit light intensity in order to avoid loss of data and to determine when it was necessary to re-transmit of data.

Regarding Claim 23, Palmer teaches the comparison of the received light signal intensity with a threshold level (i.e. reference voltage) in the system (column 1 lines 49-55, column 3 lines 30-54column 4 lines 34-36), but differs from the claimed invention in that Palmer fails to specifically teach a comparison with a plurality of reference voltages. However, since Palmer teaches that a threshold level is used to compare the received light signal intensity, it would have been well within the scope of the invention of Palmer to use a plurality of thresholds or voltages in making the comparison. Furthermore, Palmer teaches that an optional second threshold could be used in the comparison of received signal intensity (column 4 lines 36-42).

Regarding Claim 3, the combination of references and Batey in particular teach that said optical transmission circuit determines the light emission intensity by referring to the intensity level judged by said reception light intensity level judgment circuit if said decoding circuit judges that the decoding is normally completed (as discussed above regarding claim 1), and said optical transmission circuit determines the light emission intensity without referring to the intensity level judged by said reception light intensity level judgment circuit if said decoding circuit judges that the decoding is not normally completed (column 8 lines 66-67, column 9 lines 1-6).

Regarding Claim 9, the combination of references teach that said coding circuit (reference numeral 318 in Figure 4 of Palmer) encodes said transmission data, said reception light intensity information (reference numeral 106A in Figure 1 of Palmer), and reception normal completion information judged by said decoding circuit (i.e. Acknowledge return signal taught by Batey as discussed regarding claim 1), and said optical transmission circuit (reference numeral 322 in Figure 4 of Palmer) converts the transmission data, the reception light intensity information, and the reception normal completion information coded by said coding circuit to the optical signal.

Regarding Claims 11, 15, and 20, Palmer differs from the claimed invention in that Palmer fails to specifically teach extracting a light emission intensity requested from a secondary station and a secondary station request light emission intensity control signal generation circuit generating light emission intensity information requested to the secondary station. However, Batey, in the same field of endeavor, teaches a “handshaking” protocol in which a primary and a secondary transceiver exchange light emission intensity requests, and in doing so produce

Art Unit: 2633

control signals at either or both of the transceivers that sets the intensity of the transmitted signal according to the request. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have used the "handshaking" protocol taught by Batey in the system of Palmer in order to quickly set an optimum transmit intensity, thereby conserving power by eliminating the repeated exchange of intensity measurements before data transmission can begin (see columns 8 and 9 of Batey).

Regarding Claim 12, the combination of references and Batey in particular teaches that the said reception light intensity level judgment circuit judges the reception light intensity level based on the electric signal resultant from conversion by said optical reception circuit from the time at which said decoding circuit detects a start flag (inherently produced by the decoder waiting for reception of the frame in Batey Figure 13 and column 10) to the time at which said decoding circuit detects a stop flag (column 10 lines 21-56).

4. Claims 4, 7, 10, 14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Palmer in view of Batey, as applied to the claims above, and further in view of Minter (U.S. Patent No. 6,188,494).

Regarding Claims 4, 7, 10, 14, and 16, the combination of Palmer and Batey differs from the claimed invention in that it fails to specifically teach that the system comprises an optical fiber connected to said optical transmission circuit; and an optical fiber connected to said optical reception circuit. However, one skilled in the art would clearly have recognized that in order to avoid external interference from sources such as the sun or fluorescent lights while enhancing the propagation distance of the optical signals one would have used fiber optic cables to transmit the signals between the transmitter and receiver of the system. Minter, in the same field of

Art Unit: 2633

endeavor, teaches that the use of fiber optic cables is very well known in the art and in some cases is the preferred method of signal transmission (column 1 lines 57-67 and column 2 lines 1-3). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have used optic cables as taught by Minter in order to avoid external interference from sources such as the sun or fluorescent lights while enhancing the propagation distance of the optical signals.

***Response to Arguments***

5. Applicant's arguments entered 3/31/03 as part of the CPA request have been fully considered but they are not persuasive. The applicant argues that the instant application is patentably distinct from the cited references in that it can control the intensity of the transmitted signal without using ACK. However, Batey does not require that ACK be used. Instead, Batey provides three options for controlling the intensity of the light emission. Batey teaches that the light intensity can be controlled if the frame was negatively acknowledged, or no acknowledge/negative acknowledge was received, or if the  $BER > \text{threshold}$  (e.g. a determination of the whether the decoding was normally completed or not, column 10 lines 37-47).

Next the applicant argues that Batey fail to teach or suggest that the determination of light intensity is determined one way if the decoding circuit determines if decoding is complete and is determined another way if decoding is not complete. However, Batey clearly teaches these limitations in that if the  $BER > \text{threshold}$  (e.g. a determination of the whether the decoding was normally completed or not, column 10 lines 37-47), then power is incremented, or else if the  $BER < \text{threshold}$  then decrement power. Clearly Batey provides two options for setting the light emission intensity based on the determination if decoding is completed or not completed.



In response to the applicant's argument that Batey does not determine light emission intensity based on a result of a judging circuit, the examiner has relied on Palmer for this disclosure. Clearly the combination of references would have suggested these limitations as discussed in the office action.

In response to the applicant's argument that Palmer does not determine light intensity one way if decoding is complete or another way if decoding is not complete, the examiner has relied on Batey for this disclosure. Clearly the combination of references would have suggested these limitations as discussed in the office action.

In response to applicant's above arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to applicant's argument that the modification of Palmer with the teachings of Batey, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). Here, the teachings of Palmer and Batey would have suggested another means for setting the intensity of the emitted light based on whether or not decoding had been normally completed.

In response to applicant's argument that Minter is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be

Art Unit: 2633

reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Minter is in the same field of endeavor. Furthermore, the examiner has relied on Minter that the use of fibers in an optical communication system is well known in the art.

In response to the applicant's arguments concerning claim 9, the examiner does not rely solely on Palmer to teach the limitations of the claimed invention, but has also considered the disclosure of Batey and what the combination of references would have suggested to one skilled in the art.

Next the applicant argues that the handshaking protocol of Batey differs from the technique as claimed by the applicant in that the light emission intensities are not exchanged. However, Batey specifically teaches that the transmit power level for a given session is determined during the discovery phase of the communication session (column 6 lines 1-5), thereby implying that light intensity requests are exchanged between the transceivers. Furthermore, Palmer teaches that the signal strength data stream can also include control signals that indicate the power intended, thereby suggesting that the transceivers exchange intensity requests.

In response to the applicant's argument against the rejection of claim 12, Batey clearly teaches adjusting the light intensity according to start and stop flags.

In response to applicant's argument that the combination of references would have changed the operating principles of the system, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary

reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, one skilled in the art would have been motivated by knowledge generally available to have modified the device of Palmer with the intensity control method taught by Batey in order to have allowed the transceiver to determine whether decoding had been normally completed or not.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

6. Applicant's arguments filed 5/22/02 have been fully considered but they are not persuasive. The applicant argues that the combination of Palmer and Batey fails to specifically teach a digital optical communication device with a decoding circuit that decodes an electrical signal resulting from conversion by an optical reception circuit and judges whether or not the decoding is normally completed. However, it is clear that both Palmer and Batey teach a digital optical communication device with a decoding circuit that decodes an electrical signal resulting from conversion by an optical reception circuit. Furthermore, Batey in particular teaches that this decoding circuit judges whether or not the decoding is normally completed in that a BER signal is sent along with the information, thereby giving an indication as to whether or not decoding has been normally completed. One skilled in the art would clearly have recognized that a BER is an indication of the percentage of received bits in error compared to the total number of bits received, and further, an indication of the percentage of bits decoded normally (e.g. non-erroneous bits) compared to the total number of bits received. The BER transmitted in the system of Batey would have given the receiver an indication as to whether or not decoding was being completed normally. If it was found that the decoding was not proceeding normally (as provided by the BER), the combination of Palmer and Batey teach that an adjustment to the power provided to the transmitter could be changed to correct this deficiency, thereby ensuring that decoding is normally completed.

Regarding applicant's argument concerning claim 2, as stated in the office action, it is clear that Palmer teaches the comparison to a plurality of reference voltages (e.g. thresholds) in that Palmer also includes a first comparison to a first threshold in step 204 of Figure 3 and a second comparison to a second threshold in optional step 206 in Figure 3. Applicant's

argument's regarding transmission distances and reception of light intensity information is irrelevant. As discussed in the office action the combination of Palmer and Batey teach that a threshold is used as a comparison for the intensity of the received light, the comparison being used to adjust the intensity of the light emitted.

In regard to applicant's argument that limitations of claim 3 have not been met, it is clear and obvious that if no ACK has been received then decoding has not been completed normally, in response to which the transmitter is directed to increase the intensity of the transmitted power.

In regard to applicant's arguments that light emission intensity requests are not exchanged, Batey specifically teaches that "parameter negotiation" takes place between two transceivers. The "parameter negotiation" would clearly have included intensity request. Furthermore, Batey specifically teaches that once a primary transceiver has determined its transmitting power level, it could approximate the distance to a secondary transceiver. This determined distance is then transmitted to a secondary receiver thereby allowing the secondary receiver to extrapolate a starting power level. This enhancement by Batey clearly shows that intensity request based on distance can be exchanged.

Regarding applicant's arguments concerning claim 12, as stated in the office action Batey inherently teaches the detection of a start flag in that the device of Batey waits for reception of frame prior to comparison of light intensity information to thresholds. It is well known in the art that frames include headers, which provide start and stop flags in order to provide a level of control. Furthermore, the system of Batey works according to a power saving scheme, thereby requiring an indication of when to begin reception of light intensity information and end reception of light intensity information

7. In response to applicant's argument that Minter teaches a fiber optic transceiver, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

8. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., that the present invention successfully communicates all the time, or that the intensity of the emitted light identification adjusted according to communication distance) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

***Allowable Subject Matter***

9. Claim 13 is allowed.

***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kunito, Takamatsu, Gilliland, and Tomita for teaching transceiver system wherein power intensity levels are controlled via feedback.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (703)308-1393. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (703)305-4729. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9314 for regular communications and (703)872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

AB  
June 28, 2003

  
LESLIE PASCAL  
PRIMARY EXAMINER